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Tax Cannibalization by State Corporate Taxes: Revised Estimates

David Gamage
Indiana University Maurer School of Law, dgamage@indiana.edu

Darien Shanske
University of California, Davis, dshanske@ucdavis.edu

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by David Gamage and Darien Shanske

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Darien Shanske is a professor at the University of California, Davis, School of Law (King Hall) and David Gamage is a professor of law at Indiana University Maurer School of Law.

In this installment of Academic Perspectives on SALT, the authors discuss the tax cannibalization problem and whether it still applies post Tax Cuts and Jobs Act.

In 2016 and 2017, we published a series of three papers on what we called the "tax cannibalization" problem. We argued that our results from this research had profound implications for numerous debates about fiscal federalism in the United States — including the design of federal- and state-level taxes,[1] questions about constitutional doctrines,[2] and controversies regarding economic development tax incentives.[3]

To briefly summarize some of our key conclusions, we argued that state-level taxes on corporate income and on capital gains were generating large fiscal externalities that deprived the federal government of revenue. Indeed, we estimated that these fiscal externalities were so large that — at the margin — several states' tax rates on corporate income and on capital gains were destroying more than a dollar of federal revenue per dollar raised for the state governments.

Yet soon after we published these striking results, the world of U.S. fiscal federalism changed rather dramatically. Among the most important of these changes,[4] at the end of 2017 Congress passed the most sweeping federal tax overhaul in more than 30 years.[5] This new legislation, the Tax Cuts and Jobs Act, reduced the federal corporate income tax rate from 35 percent to 21 percent.

This raises the question: To what extent do our prior estimates for the tax cannibalization problem still apply post-2017? In this article we address that question, focusing on the implications of the reduced federal corporate

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[1] David Gamage and Darien Shanske, "Tax Cannibalization and Fiscal Federalism in the United States," 111 *Nw. U. L. Rev.* 295 (2017).

[2] Gamage and Shanske, "The Federal Government's Power to Restrict State Taxation," *State Tax Notes*, Aug. 15, 2016, p. 547.

[3] Gamage and Shanske, "Tax Cannibalization and State Government Tax Incentive Programs," *State Tax Notes*, Oct. 17, 2016, p. 197.

[4] Another important change was the Supreme Court's decision in *South Dakota v. Wayfair Inc.*, 138 S. Ct. 2080 (2018). For some of our writings on the implications of this decision, in articles we coauthored with Adam Thimmesch, see "*Wayfair*: Marketplaces and Foreign Vendors," *State Tax Notes*, Oct. 8, 2018, p. 111; "*Wayfair*: Sales Tax Formalism and Income Tax Nexus," *State Tax Notes*, Sept. 3, 2018, p. 975; and "*Wayfair*: Substantial Nexus and Undue Burden," *State Tax Notes*, July 30, 2018, p. 447.

[5] For a critique of aspects of this tax overhaul that we coauthored with several other tax scholars, see "The Games They Will Play: Tax Games, Roadblocks, and Glitches Under the 2017 Tax Legislation," 103 *Minn. L. Rev.* 1439 (2019).

income tax rate.[6] We otherwise use the exact same method as in our 2017 article;[7] this article departs from our 2017 calculations only by using the current corporate income tax rate of 21 percent in place of the prior rate of 35 percent. In a forthcoming article, we plan to discuss a further methodological question related to our use of statutory corporate income tax rates rather than effective corporate income tax rates, along with discussing policy implications of our revised estimates.

Before proceeding, it may be helpful to illustrate the essence of how federal-level corporate income tax rates relate to the tax cannibalization problem, through a simple example. Consider this from one of our earlier articles[8]:

> The higher a state's tax rate is on a shared base, say the corporate income tax base, the more revenue the federal government loses from the actions of taxpayers to avoid paying what is essentially a combined federal-state tax rate. Put more concretely, here is a very simple and simplified example. Suppose a corporation engages in additional profit shifting out of the United States because of the additional 8.84 percent corporate tax imposed by California. Say the corporation shields $1 million in additional profits and California thus loses $88,400 of tax revenue as a consequence. The federal fisc potentially loses $350,000, because the rate at the federal level is 35 percent. As the example illustrates, because the federal government levies much higher taxes on the shared bases of corporate and individual income than do any state governments, the federal government suffers most of the harm when state-level tax rates induce taxpayers to engage in additional distortionary behaviors that shrink the shared tax base.

How differently would this example play out today? Again, the key difference is that today's federal corporate income tax rate has been reduced to 21 percent. Thus, if California's 8.84 percent corporate income tax rate were to induce a corporate taxpayer to shield an additional $1 million in profits abroad, the federal fisc would potentially lose $210,000 of revenue as a result of that additional profit shifting under today's federal corporate income tax rate.

As this simplified example suggests, the magnitude of the tax cannibalization problem from state corporate income taxes should be somewhat smaller in 2020, because of the reduced federal corporate income tax rate. However, the essential dynamics of the tax cannibalization problem should remain mostly the same, just with a smaller magnitude.

Revised Estimates for 2020

In our 2017 article, we explained our method for estimating the magnitude of the tax cannibalization problem and then reported results based on that method. Our bottom-line results for the magnitude of the avoidable economic waste from tax cannibalization caused by state corporate income taxes in 2017 was that — for most states[9] — the marginal dollar raised through the states' corporate income taxes (rather than through an alternative that did not involve use of a tax base shared with the federal government, such as state sales taxes) cannibalized "somewhere between $0.50 and $0.95 of net revenue" from the combination of the federal government and other states' governments.[10] As we further explained in that article, that marginal tax cannibalization represented economic waste that could have been prevented by raising marginal revenues through an alternative to state corporate income taxes.[11]

[6]Federal capital gains tax rates were essentially left unchanged by the new legislation. The top federal ordinary income tax rate was reduced from 39.6 percent to 37 percent, but — in contrast to the reduction in the federal corporate tax rate — this change does not substantially affect our prior estimates of tax cannibalization.

[7]Gamage and Shanske, "Fiscal Federalism," *supra* note 1.

[8]Gamage and Shanske, "Tax Incentive Programs," *supra* note 3, at 198.

[9]The exceptions were the six states that do not levy corporate income taxes and Iowa, which levies a 12 percent corporate income tax, higher than in any other state, but with some unusual base-definition rules that make the analysis more complicated.

[10]Gamage and Shanske, "Fiscal Federalism," *supra* note 1, at 347.

[11]*Id.* at 352-53.

Using the exact same method as described in our 2017 article, but inputting the 2020 federal corporate income tax rate of 21 percent, reduces these estimates so that the marginal dollar raised through most states' corporate income tax rates (rather than through an alternative that would not involve use of a tax base shared with the federal government) now generates somewhere between 23 cents and 42 cents of avoidable economic waste from tax cannibalization.[12] In other words, the magnitude of the tax cannibalization problem from state corporate income taxes has been reduced by slightly more than half.

This should not be too surprising. A primary justification for why Congress slashed the federal-level corporate income tax rate in 2017 was the widespread view that cross-border tax planning had made the 35 percent federal rate unsustainable. Certainly, many tax experts argued that it would have been better to reform the corporate tax base to deter this cross-border tax planning rather than to slash the rate. But this does not change the reality that, absent comprehensive reforms to the corporate tax base, in many experts' views, the federal-level corporate income tax rate was set unsustainably high in 2017. Accordingly, our research found that the incremental effect of additional state-level corporate income tax rates was generating massive amounts of economic waste through tax cannibalization in 2017.

That this problem has now been more than cut in half does not mean that the problem is now small. Avoidable economic waste of 23 cents to 42 cents per marginal dollar raised is still huge compared to most other policy contexts in which economic waste could be prevented through relatively achievable policy changes.

Below is a revised version of "Table 1: Approximating Tax Cannibalization for Corporate Income Tax Rates" from our 2017 article.[13] Again, the method and inputs are all the same as in our 2017 article, except that the 2020 federal corporate tax rate of 21 percent is used instead of the pre-2018 rate of 35 percent.

As in our 2017 article, the vertical axis shows the semi-elasticity input for vertical distortions (VD) — that is, the extent to which a state corporate income tax rate shrinks the combined federal and state corporate income tax base at the margin. Similarly, the horizontal axis shows the semi-elasticity input for horizontal distortions (HD) — that is, the extent to which a state corporate income tax rate induces economic activity to move to other U.S. states and thereby grows those other states' tax bases at the margin.

As we explained in our 2017 article,[14] we read the empirical literature as implying that the most plausible range of inputs for both VD and HD are probably somewhere between 2 and 3. We thus show results for a range of VD of between 2 and 3 (and also 1 to show the implications of what we take to be an implausibly low-end measurement). For the reasons we explained in our 2017 article, we show a wider range of possible inputs for HD (but with 0 and 8 being shown to depict the implications of what we take to be an implausibly low-end and an implausibly high-end input, respectively).

[12] A more thorough update of our prior analyses than the one we provide here would review the recent empirical literature to update the empirical estimates that our analyses rely on, rather than just updating the corporate income tax rate. We hope to return to this task in future work. But for present purposes, a thorough update of that sort is beyond the scope of this short article.

[13] Gamage and Shanske, "Fiscal Federalism," *supra* note 1, at 323. As in our prior article, "When the acting state's tax rate exceeds the revenue-maximizing level for the acting state . . . marginal tax cannibalization (MTC) becomes infinite. We thus put 'N/A' in those boxes to indicate 'Not Applicable.'"; *id.*

[14] *Id.* at 319-22.

		Horizontal Distortions						
		0	1	2	3	4	8	
Vertical Distortions	1	100	50	33.3	25	20	11.1	ActStRevMaxTR (%)
		79	41.7	29.3	23.1	19.3	12.7	NatRevMaxTR (%)
		$0.23	$0.20	$0.17	$0.12	$0.06	-$0.69	MargTaxCann ($) at CA tax rate of 8.84%
		$0.23	$0.21	$0.17	$0.13	$0.07	-$1.41	MargTaxCann ($) at PA tax rate of 9.99%
	2	50	33.3	25	20	16.7	10	ActStRevMaxTR (%)
		29	20.8	16.7	14.2	12.6	9.3	NatRevMaxTR (%)
		$0.51	$0.51	$0.51	$0.52	$0.52	$0.59	MargTaxCann ($) at CA tax rate of 8.84%
		$0.52	$0.54	$0.55	$0.58	$0.61	$68	MargTaxCann ($) at PA tax rate of 9.99%
	2.5	40	28.6	22.2	18.2	15.4	9.5	ActStRevMaxTR (%)
		19	14.8	12.5	11	10	7.9	NatRevMaxTR (%)
		$0.67	$0.70	$0.73	$0.76	$0.82	$2.41	MargTaxCann ($) at CA tax rate of 8.84%
		$0.70	$0.74	$0.79	$0.87	$1.00	N/A	MargTaxCann ($) at PA tax rate of 9.99%
	3	33.3	25	20	16.7	14.3	9.1	ActStRevMaxTR (%)
		12.3	10.4	9.2	8.4	7.8	6.6	NatRevMaxTR (%)
		$0.86	$0.91	$0.97	$1.06	$1.19	$10.07	MargTaxCann ($) at CA tax rate of 8.84%
		$0.90	$0.98	$1.08	$1.24	$1.51	N/A	MargTaxCann ($) at PA tax rate of 9.99%

Within each box, we then show four output estimates:

- First, "ActStRevMaxTR (%)" shows the state corporate income tax rate that would maximize tax revenue for the acting state's government. In other words, hiking the tax rate above that level would deprive the acting state government of revenue (this level is sometimes referred to as the peak of the Laffer curve[15]). Any state government that cares about the welfare of its citizens should thus set its corporate tax rate below this level.
- Second, "NatRevMaxTR (%)" shows the state tax rate that would maximize revenues for all jurisdictions, including the acting state, the federal government, and other states' governments. So long as tax cannibalization is positive, this number will be lower than the prior output measurement, because positive tax cannibalization means that the acting state's tax rate is on net destroying other U.S. governments' revenues. It is not necessarily irrational for a state government to set its tax rate above this level, because the state government may not care much about the impact of its tax policies on federal government revenue.
- Finally, "MargTaxCann ($) at CA tax rate of 8.84%" and "MargTaxCann ($) at PA tax rate of 9.99%" show our tax cannibalization estimates for two states: California, which levies an 8.84 percent corporate tax rate, and Pennsylvania, which levies a 9.99 percent corporate tax rate.

Looking across what we take to be the most plausible range of estimates for both VD and HD from the prior empirical literature, (between 2 and 3 for both measurements), the table shows that we estimate marginal tax cannibalization of between 51 cents and $1.06 for California's corporate

[15] *Id.* at 310.

income tax rate, and of between 55 cents and $1.24 for Pennsylvania's corporate income tax rate.

Put another way, in 2020, California's corporate income tax rate is likely destroying somewhere in the range of 51 cents to $1.06 of net revenues from other jurisdicitons per marginal tax dollar raised by California. And Pennsylvania's corporate income tax rate is likely destroying somewhere in the range of 55 cents to $1.24 of net revenues from other jurisdictions per marginal tax dollar raised by Pennsylvania.

As we explained in our 2017 article,[16] the estimates we report on the table are much higher than the bottom-line estimates for avoidable economic waste from tax cannibalization that we reported earlier. The reason is that the estimates in the table are too high, in a sense, because they do not take into account that the states would need to raise revenue in some other way and that other ways of raising revenue would also cause some economic waste. In short, raising revenue through state sales taxes, for example, would create incentives for business taxpayers to move their production activities out of state, so as to reduce their susceptibility to those sales taxes.[17] But the marginal tax cannibalization generated by alternatives like state sales taxes is substantially less than the marginal tax cannibalization generated by state corporate income taxes that piggyback on the federal corporate income tax base. Our bottom-line estimates for the "avoidable economic waste" from the tax cannibalization caused by state corporate income taxes thus approximate the extent to which state corporate income taxes generate greater marginal economic waste than do alternatives.

This is why our bottom-line estimates for avoidable economic waste from tax cannibalization is between 23 cents and 42 cents on the margin, looking across most of the U.S. states.[18] This is in contrast to a range like 51 cents to $1.06 resulting from considering California's corporate income tax alone.

In summary, although the tax cannibalization generated by state corporate income taxes has been substantially reduced since 2017, we still consider our 2020 estimates to be rather large and striking. In a forthcoming follow-up article we will evaluate some policy implications of these revised estimates. ■

[16] *Id.* at 336-53.

[17] State sales and use taxes typically apply to purchases of many business inputs by corporate taxpayers, especially when these purchases are intended for the corporate taxpayers' use in the state.

[18] See note 12 and accompanying text *supra*. Looking at California, our bottom-line estimate for avoidable economic waste in 2020 is between 35 cents and 41 cents per marginal dollar of revenue raised by the corporate income tax rate. Looking at Pennsylvania, our bottom-line estimate for avoidable economic waste in 2020 is between 40 cents and 42 cents per marginal dollar of revenue raised by the corporate income tax rate.